

CAI  
MT 76  
- A 66

Government  
Publications



National Energy Board

---

Reasons for Decision

**Westcoast Energy Inc.**

**GH-6-90**

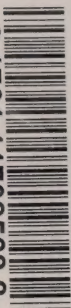


June 1991

---

Facilities

3 1761 11708568 8





Digitized by the Internet Archive  
in 2023 with funding from  
University of Toronto

<https://archive.org/details/31761117085688>

**National Energy Board**

---

**Reasons for Decision**

**In the Matter of**

**Westcoast Energy Inc.**

**Application Dated 6 July 1990, as amended,  
for the Adsett Pipeline Project**

**GH-6-90**

**June 1991**



© Minister of Supply and Services Canada 1991

Cat. No. NE 22-1/1991-10E  
ISBN 0-662-18968-X

This report is published separately  
in both official languages.

Copies are available on request from:

Regulatory Support Office  
National Energy Board  
473 Albert Street  
Ottawa, Canada  
K1A 0E5  
(613) 998-7204

Printed in Canada

Ce rapport est publié séparément  
dans les deux langues officielles.

Exemplaires disponibles auprès du:

Bureau du soutien de la réglementation  
Office national de l'énergie  
473, rue Albert  
Ottawa (Canada)  
K1A 0E5  
(613) 998-7204

Imprimé au Canada

## **Recital and Appearances**

IN THE MATTER OF the *National Energy Board Act* ("the Act"), and the regulations made thereunder;

AND IN THE MATTER OF an application dated 6 July 1990, as amended 6 December 1990, by Westcoast Energy Inc. for a Certificate of Public Convenience and Necessity pursuant to Part III of the Act, for the Adsett Pipeline Project;

AND IN THE MATTER OF the National Energy Board Hearing Order GH-6-90.

HEARD in Fort Nelson, British Columbia on 16, 17, and 18 April 1991.

### **BEFORE:**

C. Bélanger	Presiding Member
J.-G. Fredette	Member
W.G. Stewart	Member

### **APPEARANCES:**

J.W. Lutes	Westcoast Energy Inc.
H.R. Ward	Suncor Inc.
J.R. Rich S. Dolman	Prophet River Indian Band
D. Edwards P. Asher C. Griffith	Fort Nelson-Liard Regional District
R. Graw	Board Counsel

## Table of Contents

Recital and Appearances .....	(i)
Abbreviations .....	(iv)
1. Background .....	1
2. Treaty Rights and Land Claims .....	4
2.1 Treaty Rights .....	4
2.1.1 Effects of the Proposed Adsett Pipeline .....	4
2.1.2 Effects of Development in the Area .....	4
2.1.3 Views of the Board .....	4
2.2 Land Claims .....	5
3. Gas Supply .....	7
3.1 Reserves .....	7
3.2 Productive Capacity .....	8
3.3 Views of the Board .....	8
4. Requirements .....	10
4.1 Service Agreements .....	10
4.2 Overall Market Requirements .....	11
4.3 Views of the Board .....	12
5. Facilities .....	13
5.1 Pipeline Design .....	13
5.2 Safety .....	14
5.3 Other Technical Considerations .....	14
5.4 Technical Conditions of the Order .....	15
6. Land Use and Environmental Matters .....	16
6.1 Land Use .....	16
6.1.1 Route Selection .....	16
6.1.2 Land Requirements .....	16
6.2 Early Public Notification .....	17
6.2.1 Government Liaison .....	17
6.2.2 The Band and Interested Parties .....	17
6.3 Environmental Matters .....	17
6.3.1 Environmental Assessment .....	17
6.3.2 Environmental Effects .....	18
6.4 Cumulative Impacts .....	21
7. Socio-economic Matters .....	23
7.1 Hiring Practices .....	23
7.2 Access to the Right-of-Way .....	23
7.3 Compensation .....	24
8. Economic Feasibility of the Project .....	25
9. Application of the Raw Gas Transmission Facility Expansion Policy .....	26
10. Disposition .....	27



## Tables

3-1 Comparison of Estimates of Remaining Established Gas Reserves and Undiscovered Potential .....	7
4-1 Executed Firm Service Agreements.....	10

## Figures

1-1 Location of the Applied-for-Facilities .....	2
3-1 Comparison of Estimates of Daily Productive Capacity for the Adsett Area .....	9

## List of Appendices

I List of Issues .....	28
II The Board's Decision on the Application for Review of the National Energy Board Environmental Screening Document .....	29
III Certificate Conditions in Respect of the Adsett Pipeline .....	30

## Abbreviations

Act	<i>National Energy Board Act</i>
Alberta and Southern	Alberta and Southern Gas Co. Ltd.
Band	Prophet River Indian Band
Bcf	billion cubic feet
B.C.	British Columbia
B.C. Ministry	British Columbia Ministry of Energy, Mines and Petroleum Resources
BC Gas	BC Gas Inc.
BCUC	British Columbia Utilities Commission
Board	National Energy Board
CEARC	Canadian Environmental Assessment Research Council
DFO	Department of Fisheries and Oceans
EARP Guidelines Order	<i>Environmental Assessment and Review Process Guidelines Order</i>
ERP	Westcoast's Emergency Response Plan-Northern District
ESD	emergency shutdown
ha	hectare
H <sub>2</sub> S	hydrogen sulphide
Kern River	Kern River Gas Transmission Pipeline
km	kilometre
LDC	local distribution company
m	metre
m <sup>3</sup>	cubic metre
Mcf	thousand cubic feet
mm	millimetre
m <sup>3</sup> /d	cubic metres per day



MMcfd	million cubic feet per day
NEB	National Energy Board
Northwest	Northwest Pipeline Corporation
O.D.	outside diameter
Onshore Regulations	<i>Onshore Pipeline Regulations</i>
Pennzoil	Pennzoil Petroleums Ltd.
PG&E	Pacific Gas and Electric Company
PGT	Pacific Gas Transmission Company
ppm	parts per million
RGT Policy	Westcoast's Raw Gas Transmission Facility Expansion Policy
Suncor	Suncor Inc.
Surcharge	Toll Surcharge
U.S.	United States of America
Westcoast	Westcoast Energy Inc.



# Background

On 6 July 1990, Westcoast Energy Inc. ("Westcoast") filed an application with the National Energy Board ("the Board") for a Certificate of Public Convenience and Necessity pursuant to Part III of the *National Energy Board Act* ("the Act") authorizing the construction of additional pipeline facilities to be added to its existing Fort Nelson raw gas transmission system. Hearing Order No. GH-6-90 was issued 13 August 1990 setting down the application for public hearing on 29 October 1990 in Fort Nelson, British Columbia ("B.C.").

The Prophet River Indian Band ("the Band"), a member of the Treaty 8 Tribal Association, filed a Notice of Motion dated 12 September 1990 requesting that the hearing be adjourned until 15 June 1991, or such later date as deemed appropriate by the Board. The principal ground upon which the Motion was based was that the Band had not had sufficient time to prepare adequately for the hearing. After receiving comments from interested parties, the Board denied the Motion on 5 October 1990 stating that the Band had been given adequate notice to prepare its case. In addition, the Board was not persuaded, on the basis of the material before it, that the Band had taken all possible steps during the time allotted to prepare for the hearing.

On 12 October 1990, the Band requested a review of the Board's decision denying the Band's request for an adjournment on the grounds that, as a result of changed circumstances and new facts which had arisen since that decision, there was now some doubt as to the correctness of it. The Band also requested an adjournment of the hearing until December 1990. The Board allowed the review and on 22 October 1990, following the receipt of comments from interested parties on the merits of this request, agreed to adjourn the hearing *sine die*. The Board stated that this adjournment would allow the Band adequate time to prepare its case fully and would ensure a more meaningful hearing. The Board noted that, while this adjournment could create potential difficulties

for Westcoast's proposed construction schedule should the application be approved, this would be unavoidable in the circumstances. On 15 November 1990, the Board advised interested parties that the hearing had been rescheduled and would commence on 14 January 1991.

Subsequent to this adjournment, Westcoast decided to split its original application into two smaller projects. On 30 November 1990, it filed an application pursuant to section 58 of the Act in respect of the Klua Pipeline. This application represented the northern section of the original Adsett facilities and would consist of 33.45 km of 406.4 mm outside diameter ("O.D.") pipe extending from the Klua gas field in northeastern B.C. to the Fort Nelson Gas Plant.

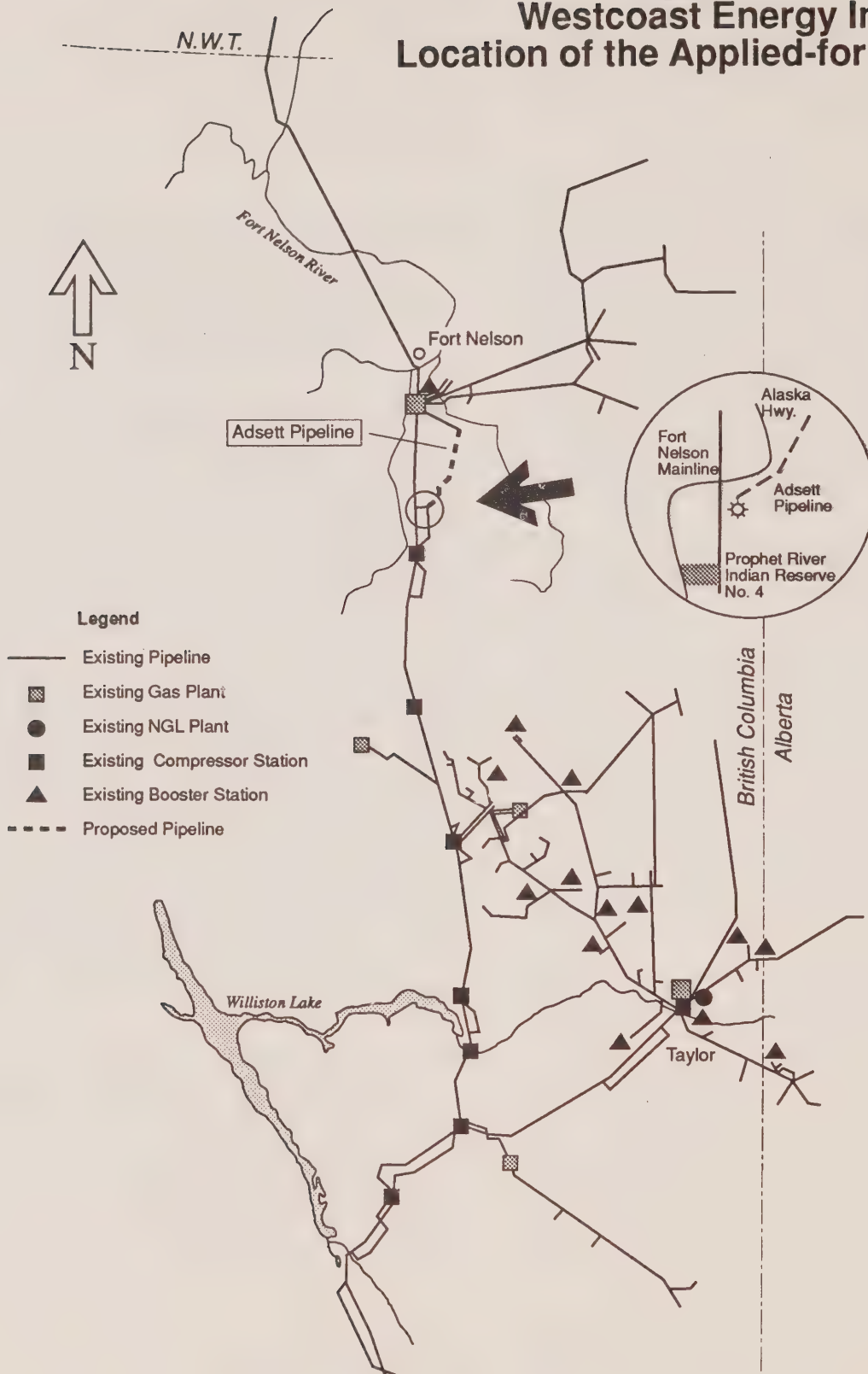
On 6 December 1990, Westcoast amended its original application filed 6 July 1990 by deleting from it those facilities which comprised the Klua Pipeline. The Adsett pipeline facilities would now consist of approximately 48.0 km of 219.1 mm O.D. pipe and would extend from the Adsett gas field in northeastern B.C. to the commencement point of the Klua Pipeline (Figure 1-1). The facilities would initially be used to provide transportation service to Suncor Inc. ("Suncor") and Pennzoil Petroleum Ltd. ("Pennzoil") for  $345 \times 10^3 \text{ m}^3/\text{d}$  and  $143 \times 10^3 \text{ m}^3/\text{d}$ , respectively, of raw gas from 1 March 1992 to 31 October 2002.

The Board accepted the amended Adsett application as the application to be reviewed during the GH-6-90 proceedings. Because the Board believed that it would be preferable to make a decision respecting the Klua Pipeline prior to hearing the amended Adsett application, and because Westcoast no longer contemplated a 1990/1991 winter construction schedule for the Adsett facilities, the hearing was adjourned to 16 April 1991.

In conjunction with processing Westcoast's application pursuant to the Act, the Board also conducted an environmental screening of the Adsett facilities



**Figure 1-1  
Westcoast Energy Inc.  
Location of the Applied-for Facilities**



in compliance with the *Environmental Assessment and Review Process Guidelines Order* (the "EARP Guidelines Order") to the extent that there was no duplication with the Board's own regulatory process. As part of the environmental screening, the Board invited the comments of interested parties. The results of the environmental screening are set out in the National Energy Board Environmental Screening Document issued 4 April 1991.

The Board indicated in the screening document that it would assess, as part of the public hearing to

be held pursuant to the Act, the environmental implications of the proposed pipeline, including the details of the Band's interests and the impact of the pipeline on those interests. The other issues to be addressed during the hearing, as listed in Appendix I, were set out in Hearing Order GH-6-90.

The public hearing was conducted in Fort Nelson, B.C., from 16 to 18 April 1991, inclusive. The Board's decision and reasons therefor are presented in this report.

# Treaty Rights and Land Claims

## 2.1 Treaty Rights

### 2.1.1 Effects of the Proposed Adsett Pipeline

Because the route of the proposed Adsett Pipeline will be located entirely within provincial Crown lands traditionally used by the Band for the purposes of hunting, trapping and fishing, the Band contended that its constitutionally guaranteed Treaty rights for those purposes may be adversely affected if the Board were to approve the applied-for facilities.

The relevant section of *Treaty 8, 1899* provides:

*“And Her Majesty the Queen, HEREBY AGREES with the said Indians that they shall have the right to pursue their usual vocations of hunting, trapping and fishing throughout the tract surrendered as heretofore described, subject to such regulations as may from time to time be made by the government of the country, acting under the authority of Her Majesty, and saving and excepting such tracts as may be required or taken up from time to time for settlement, mining, lumbering, trading or other purposes.”*

In final argument, the Band submitted that the Board, as agent of the Crown, was bound by a fiduciary obligation or trust-like relationship with aboriginal peoples, i.e. the Band. Counsel for the Band relied upon the Supreme Court of Canada decision in *Sparrow v. R. et al*, 46 BCLR(2d)1 in support of this proposition.

The Band’s contention was that as a result of this special relationship, the Board must take special care to ensure that the Band’s constitutionally guaranteed rights to hunt, trap and fish on its traditional lands would not be infringed by the Adsett Pipeline and that the Band’s current

specific claim negotiations would not be adversely affected by the Adsett Pipeline. (see Section 2.2)

### 2.1.2 Effects of Development in the Area

As part of its direct evidence, the Band stated that past development on its traditional lands, which has included exploration, oil and gas wells and pipelines, has led to a diminished land base and diminished resources with no benefit derived by the Band members themselves. The Band further stated that this development has neither increased the wealth of the Band members nor provided employment opportunities or training and has resulted in a progressive loss over the past 40 years.

Although evidence presented during the hearing indicated that, should the Adsett Pipeline be approved, additional producer wells and associated producer facilities and gathering lines would probably be developed in the future, no evidence was presented on the exact nature or timing of this type of development or whether such development would infringe on the Band’s Treaty rights.

The Band testified that any development proposals that would make use of the Adsett Pipeline would only add to what has already occurred on its traditional lands in terms of land base and resources.

### 2.1.3 Views of the Board

The Board acknowledges that it is bound by the general principle as set out in the *Sparrow* case that the Crown owes a fiduciary duty to aboriginal peoples to protect and preserve their constitutionally guaranteed rights. In this case, this refers to the Band’s right to hunt, trap and fish on the subject Crown lands as provided in *Treaty 8, 1899*.

However, in stating this general principle, the Supreme Court added that aboriginal rights are not absolute and an infringement of those rights, if



an infringement does occur, may be valid in certain circumstances. At page 26 of the decision, Dickson C.J.C. and LaForest J. stated:

*"In our opinion, this does not mean that any law or regulation affecting aboriginal rights will automatically be of no force or effect by the operation of section 52 of the Constitution Act, 1982. Legislation that affects the exercise of aboriginal rights will nonetheless be valid, if it meets the test for justifying an interference with a right recognized and affirmed under section 35(1)."*

The Supreme Court then set out a test to be followed in determining whether an infringement of those rights has occurred and, if so, whether the infringement is justified. The Court placed the onus of satisfying the first part of the test, whether or not an infringement of aboriginal rights has occurred, on the party alleging the infringement.

The evidence before the Board on this point is inconclusive. Should the Adsett Pipeline be approved, as well as other development that would make use of that pipeline, there will undoubtedly be some disruption to hunting, trapping and fishing during any construction periods. However, there was no evidence to suggest that the pipeline right-of-way would have a permanent and negative impact on the ability of the Band to exercise its right to hunt, trap and fish in the vicinity of the pipeline. In addition, there was no evidence to suggest that additional development projects resulting from the pipeline would have a similar impact on the ability of the Band to exercise its right to hunt, trap and fish on its traditional lands. Indeed, the evidence did suggest that with proper revegetation, the right-of-way could enhance the productivity and diversity of the area.

The Band's experts testified that the subject lands were not among the Band's traditionally preferred area for hunting, trapping and fishing. While there was some potential for these activities in the vicinity of the applied-for facilities, this area was not considered a prime locale for them. Historically, most of the Band's hunting, trapping and fishing occurred some distance to the west and southwest of the proposed facilities and the probable location of any further development projects that would make use of the proposed facilities.

The Band was also concerned that a pipeline right-of-way could provide better access into the region to non-natives and may therefore increase their hunting activities. Westcoast testified that most of the pipeline route was through muskeg. Access through this type of terrain would be extremely difficult even during the coldest months of the year.

The Board accepts this evidence and finds that although the pipeline right-of-way may result in an increase in access during the winter months, the remoteness of the right-of-way combined with the fact that the area is not a preferred locale for hunting, trapping and fishing leads to the conclusion that the right-of-way will have little, if any, impact on wildlife. The Board is also not convinced that any development proposals that would make use of the Adsett Pipeline will result in an infringement of the Band's treaty rights to hunt, trap and fish in the subject area. Therefore, the Board concludes in accordance with the test set down in the *Sparrow* Case that approval of the proposed pipeline, as well as any further developments that may arise from it, would not result in an infringement of the Band's Treaty rights to hunt, trap and fish on the subject lands.

## 2.2 Land Claims

The Band occupies the Prophet River Indian Reserve No. 4, located approximately 77 km south of Fort Nelson at Mile 234 on the Alaska Highway. The commencement point of the Adsett Pipeline would be located approximately five km to the north of the reserve. The reserve, consisting of 370 ha (924 acres), has been occupied by the Band since its separation from the Fort Nelson Indian Band in 1974.

The Band testified that it has had a specific claim before the Department of Indian and Northern Affairs, Office of Native Claims since 1 February 1990 involving, among other items, approximately 8 432 ha (20 836 acres) of land. It further indicated that it is negotiating for an additional 14 ha (34 acres) adjacent to the reserve as part of that claim. The Band had expressed concern that the current reserve would be too small to accommodate the Band members seeking residence on the reserve as a result of recent amendments to the Indian Act.

The Band's evidence indicated that at one time its traditional lands covered an area of approximately 20 720 square km (8 000 square miles)

surrounding the present reserve. Currently, the Band identifies its traditional lands according to six registered traplines which total approximately 4 144 square km (1 600 square miles) surrounding the reserve. Four of those traplines are held by families of the Band, one by a signatory to the Fort Nelson Band and the other by a local guide-outfitter. The Band indicated that it was seeking, through the specific claim process, funding to secure the alienated traplines.

In final argument, counsel for the Band submitted, *inter alia*, that if the Board decided to approve the Adsett Pipeline, it should defer issuing a certificate until the Band's specific claim has been resolved. In the alternative, the Band submitted that, should the Board decide to approve the Adsett Pipeline and not to defer issuing a certificate, the certificate should be conditioned so as not to prejudice the Band's specific claim negotiations and settlement.

#### ***Views of the Board***

While the Board was not presented with the particulars of the Band's specific claim, the Band's expert witness regarding that claim stated that he anticipated that the Band would claim land

directly adjacent to the proposed Adsett Pipeline. The Board finds that, should this be the case, the pipeline right-of-way would not be located on land claimed by the Band and therefore would not prejudice the Band's specific claim and settlement. In the event that the pipeline was to be located on land claimed by the Band, there was no evidence to suggest that the issuance of a certificate for the applied-for facilities would in any way prejudice the Band's specific claim. Westcoast testified that the use of the right-of-way should not prejudice this claim or in any other way act as an impediment to its resolution.

The Board believes that the presence of the pipeline, as with all other developments located on or near such lands, will not prejudice the specific claim but rather will simply become a factor to be considered in the claim negotiations. Accordingly, the Board is of the view that it is not necessary to defer its decision on whether or not to issue a certificate for the applied-for facilities until final resolution of the Band's specific claim. In addition, the Board does not believe that it would be appropriate to include a condition in any certificate which may be issued that would link the construction of the pipeline to this claim.



3.1 Reserves

Westcoast provided estimates of established reserves and undiscovered potential in support of the Adsett Pipeline. As shown in Table 3-1, the Board's estimate of established reserves is 14 percent higher than that of Westcoast. However, the Board's estimate of undiscovered potential is approximately 50 percent lower than Westcoast's. Overall, the Board's estimate of established reserves and undiscovered potential exceeds that of Westcoast by about five percent.

Table 3-1

Comparison of Estimates of Remaining Established Gas Reserves and Undiscovered Potential			
10 <sup>6</sup> m <sup>3</sup> (Bcf) <sup>1</sup>			
	WESTCOAST	NEB	
Remaining Established Reserves	2 453 (87)	2 799	(100)
Undiscovered Potential	<u>433</u> ( <u>15</u> )	<u>222</u>	( <u>8</u> )
TOTAL	2 886 (102)	3 021	(108)

1. as of 1 January 1990

Established Reserves

In its analysis of Westcoast's gas supply, the Board recognized established reserves for 10 pools in the Adsett supply area, none of which are currently on production. These pools are found in the Slave Point and Pine Point Formations.

The Slave Point pools account for approximately 85 percent of the Board's total estimate of remaining established reserves, with the Adsett

Field's Slave Point A Pool accounting for almost one-half of these reserves. The Board's estimate of established reserves for this pool, which is based on contour mapping using available well control, exceeds Westcoast's by 19 percent. Westcoast's estimate is based on area assignments for each well. It would appear that lands between the well area assignments were included by Westcoast in its estimate of undiscovered potential. The Board has, however, included these lands in its estimate of established reserves to the extent that they fall within the Board's mapping of the zero contour for the pool. The Board's estimate of established reserves is therefore higher than Westcoast's.

Differences in estimates of established reserves for the nine other pools result from minor variations in the interpretation of area, net pay and porosity parameters. The Board's estimate of established reserves for these pools is nine percent higher than Westcoast's.

Undiscovered Potential

In addition to the established reserves described above, Westcoast estimated the undiscovered gas potential within the Adsett supply area to be 433 10<sup>6</sup>m<sup>3</sup> (15 Bcf). Westcoast assigned 211 10<sup>6</sup>m<sup>3</sup> (7 Bcf) to the Adsett Field's Slave Point play and 222 10<sup>6</sup>m<sup>3</sup> (8 Bcf) to the Bulldog (Fontas) Field's Slave Point play.

The Slave Point plays generally consist of small isolated reef structures. Westcoast noted that one undrilled location in the Bulldog Field has been identified from seismic interpretation as a possible extension to an existing reef. In addition, the operator of the Adsett Field has identified undrilled lands to which the Slave Point potential was assigned.

The Board assigned most of Westcoast's estimate of the Adsett undiscovered gas potential to the established reserves category for the reason noted



above. The Board concurs with Westcoast's determination of undiscovered potential for the Bulldog Field and, in its analysis, adopted Westcoast's estimate of potential for this area.

Although the Board has adopted an estimate of undiscovered potential for the supply area of  $222 \times 10^6 \text{ m}^3$  (8 Bcf), it recognizes the uncertainty associated with estimates of this nature. The Board considers this estimate to be somewhat conservative, given the recent successful exploration results in the Jackfish and Bulldog areas.

### 3.2 Productive Capacity

Westcoast provided an estimate of raw gas productive capacity from the Adsett area. Its projection was based upon expected productive capacity from the existing wells in the Adsett, Tenaka, Jackfish and Bulldog (Fontas) fields, as well as from two additional development wells, one in the Adsett Field and the other in the Bulldog Field.

Westcoast's projection of overall productive capacity was  $919 \times 10^3 \text{ m}^3/\text{d}$  (32 MMcfd) in 1992, remaining constant at that level for two years and then declining at the rate of approximately 13 percent per year. Westcoast stated that the area holds significant potential for reserves development, as indicated by the high degree of recent land acquisitions and geophysical activity by producers. Westcoast expects that additional reserves will be developed upon the completion of the proposed pipeline and considered its current estimate of productive capacity for the area to be conservative.

The Board's estimate of the productive capacity from the Adsett area shows that the full capacity of the pipeline would be required for approximately five years. Productive capacity would decline thereafter. In the latter years of the projection period, the Board's projection is similar to Westcoast's. The Board assumed that the rate of production of undiscovered potential would be the same as that of the existing established reserves. The Board also assumed that the undiscovered potential would be connected beginning in the fifth year as the productive capacity from the established reserves commenced to decline.

The Board's estimate of productive capacity is higher than Westcoast's due in part to the Board's higher estimate of remaining established reserves and in part to the manner in which the Board incorporates the potential for additional development (wells or compression) if it is anticipated that such development will be economically viable.

A comparison of the respective estimates of productive capacity is shown in Figure 3-1.

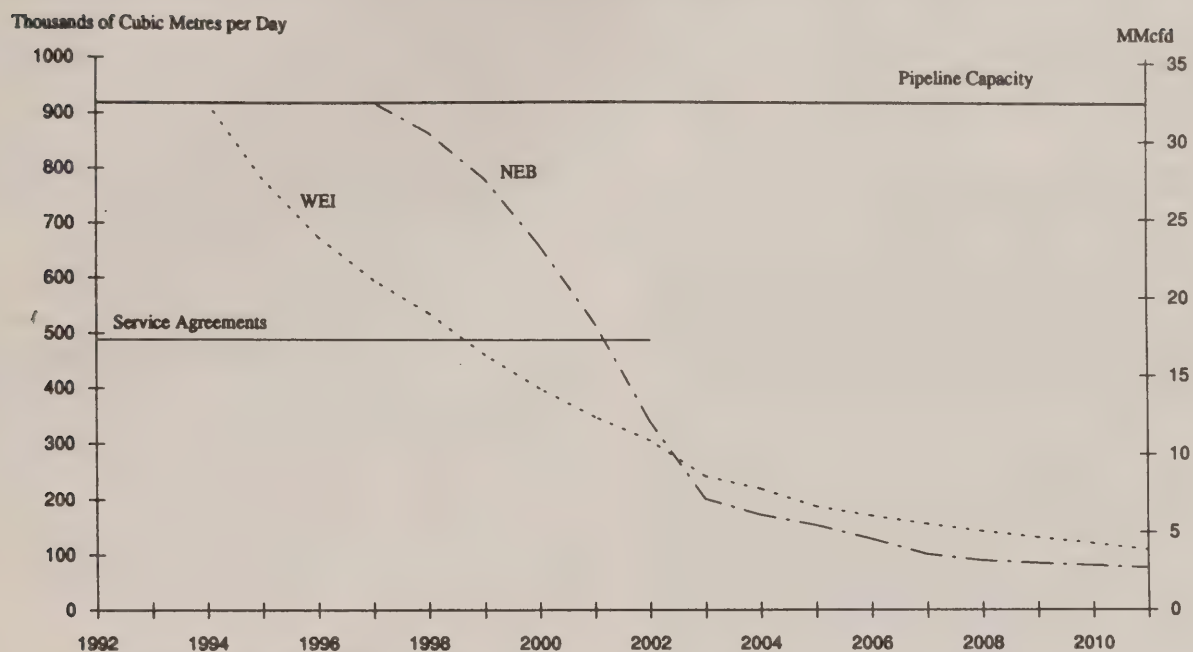
### 3.3 Views of the Board

The Board is satisfied that Westcoast has demonstrated the adequacy of reserves and productive capacity to support the proposed project.

The Board agrees with the applicant that construction of the pipeline can be expected to stimulate further exploration and development activity in the area.

Figure 3-1

# COMPARISON OF ESTIMATES OF DAILY PRODUCTIVE CAPACITY FOR THE ADSETT AREA<sup>1</sup>



1. All estimates are raw gas volumes

# Requirements

## 4.1 Service Agreements

In support of its application, Westcoast indicated that it had executed firm service agreements with Suncor and Pennzoil for firm raw gas transmission service on the applied-for facilities and for firm treatment service at the Fort Nelson Gas Plant.

Westcoast filed executed firm service agreements with Suncor and Pennzoil dated 7 June 1990, and amended by agreements dated 4 October 1990, for the services shown in Table 4-1 below. Both agreements provide for a ten-year floating term which Westcoast estimated would commence on 1 March 1992 and end on 28 February 2002.

Table 4-1

### Executed Firm Service Agreements

Shipper	Type of Service			
	Raw Gas Transmission		Treatment	
	(10 <sup>3</sup> m <sup>3</sup> /d)	(MMcfd)	(10 <sup>3</sup> m <sup>3</sup> /d)	(MMcfd)
Suncor	345.0	12.2	224.9	7.9
Pennzoil	<u>143.0</u>	<u>5.0</u>	<u>129.2</u>	<u>4.6</u>
TOTAL	488.0	17.2	354.1	12.5

Westcoast submitted that it would also expect other shippers with interests in the Adsett, Jackfish and Tenaka gas fields to contract for raw gas transmission service on the proposed facilities at some future date. Specifically, Westcoast noted that Home Oil Company had expressed an interest in respect of its Jackfish wells and that Phillips Petroleum Resources had submitted a firm service

request for gas to be delivered into the Adsett Pipeline from the Tenaka field.

Westcoast has been advised that Suncor has contracted its Adsett gas reserves to Alberta and Southern Gas Co. Ltd. ("Alberta and Southern") for resale to Pacific Gas Transmission Company ("PGT"), a wholly-owned subsidiary of Pacific Gas and Electric Company ("PG&E"). PGT sells gas to PG&E to serve its gas franchise areas in northern and central California. The sale to Alberta and Southern has been arranged through PacGas Limited, a gas marketing company founded by Suncor and six other gas producers.

Westcoast noted that the Suncor-Adsett property is one of six properties that Suncor has dedicated to the long-term (i.e. 25 years) gas supply contract that it has with Alberta and Southern. The contract is a reserve-based, area contract for 480.0 10<sup>3</sup>m<sup>3</sup>/d (17.0 MMcfd), which forms part of Alberta and Southern's allocable gas supply pool. Suncor advised Westcoast that, under the terms of that contract, Suncor has the right to sell excess volumes to intraprovincial and export buyers during periods of low nominations. Suncor also indicated that, in accordance with the Alberta and Southern nominations, it intends to produce the Adsett property in preference to other properties dedicated under the area contract.

Westcoast indicated that it had been advised by Pennzoil that, while it had been contacted by a number of potential gas purchasers, no gas sales agreements have been entered into, although efforts were continuing. Pennzoil advised Westcoast that it was actively pursuing new gas markets in B.C., including the Vancouver Island core and industrial markets, and that letters of intent had been signed with prospective purchasers in this regard. Pennzoil added that the gas sales contracts were being drafted and would come into effect once executed and approved by the British Columbia Utilities Commission ("BCUC"). Pennzoil did not expect any



difficulties in securing BCUC approval of these gas sales contracts.

Westcoast testified that one of the difficulties confronting Pennzoil in concluding a gas sales agreement was uncertainty regarding the availability of transmission facilities.

Pennzoil further advised Westcoast that it is also actively pursuing sales opportunities in the California market but that gas sales agreements remain to be executed.

## 4.2 Overall Market Requirements

Westcoast provided a domestic and export market forecast of gas deliveries from the Westcoast system for the ten-year period commencing 1 January 1992 and ending 31 December 2001, which indicated that:

- (i) total domestic gas deliveries are anticipated to increase from 7 960.0  $10^6\text{m}^3$  (281 Bcf) to 9 801.0  $10^6\text{m}^3$  (346 Bcf), or 2.3 percent on an average annual basis;
- (ii) total export gas deliveries are anticipated to increase from 6 572.0  $10^6\text{m}^3$  (232 Bcf) to 9 178.0  $10^6\text{m}^3$  (324 Bcf), or 3.8 percent on an average annual basis; and
- (iii) total gas deliveries are anticipated to increase from 14 532.0  $10^6\text{m}^3$  (513 Bcf) to 18 979.0  $10^6\text{m}^3$  (670 Bcf), or 3.3 percent on an average annual basis.

Westcoast indicated that its domestic market forecast is based upon:

- (i) historical gas market data;
- (ii) its review of available domestic gas market forecasts; and
- (iii) the medium and long-term gas market forecasts supplied by and reviewed with the Inland and Lower Mainland Divisions of BC Gas Inc. ("BC Gas"), Pacific Northern Gas Ltd. and Pacific Coast Energy Corporation.

Westcoast identified Vancouver Island as a principal new gas market. Westcoast noted the Vancouver Island gas pipeline, which is presently under construction and is anticipated to be in

service by the fall of 1991, is expected to make gas available to large industrial customers and to provide for the conversion to gas of customers currently served by a propane-air distribution system. Westcoast noted that the joint venture representing the large industrial customers has executed a long-term service agreement with Pacific Coast Energy Corporation, the operator of the new pipeline.

In addition, Westcoast noted that its forecast reflects the gas demand associated with two domestic cogeneration facilities, one to be constructed at its McMahon Gas Plant with a projected 1994 start-up, the other at its Fort Nelson Gas Plant with a projected 1996 start-up. Westcoast added that further cogeneration development in the domestic market is possible but has not reflected this in its forecast.

Westcoast noted that its export market forecast is based upon Northwest Pipeline Corporation's ("Northwest") throughput volumes and an assessment of the share of the U.S. gas market accessible to the Westcoast system through the export point near Huntingdon, B.C. The traditional "on-system" Northwest market forecast is based upon the demand forecasts furnished by the U.S. local distribution companies ("LDCs") connected to the Northwest system that serve the states of Washington, Oregon and Idaho. Westcoast submitted that the on-system export sales forecast was based on the assumption of continued growth in the residential and small commercial sectors due to new housing starts and existing fuel customers switching to gas. Northwest's forecast also includes "off-system" sales in northern Nevada.

In addition, the export market forecast takes into account the U.S. Pacific Northwest electric generation and California markets and the share of those two markets that could be served by exports of Canadian-sourced gas off the Westcoast system at Huntingdon, B.C.

Westcoast noted that recent economic and population growth have brought the Pacific Northwest region's electric energy demand and capacity in balance. As a result, utilities, major industries and other developers are actively pursuing cogeneration opportunities with gas being the fuel of choice. Westcoast expects electric utility generation and cogeneration in the Pacific Northwest to result in exports increasing from 2 480.0  $10^3\text{m}^3/\text{d}$

(90.0 MMcfd) in 1992 to 3 730.0  $10^3\text{m}^3/\text{d}$  (131.0 MMcfd) by 2001.

Westcoast indicated that with the construction of the Kern River Gas Transmission Pipeline ("Kern River"), now under way, firm exports of B.C.-sourced gas to Southern California will commence flowing via the Northwest and Kern River systems by mid-1992. In this regard, Westcoast noted that five major B.C. gas producers and suppliers currently hold firm service contracts on those two systems totalling 4 533.0  $10^3\text{m}^3/\text{d}$  (160.0 MMcfd), with a further potential for 570.0  $10^3\text{m}^3/\text{d}$  (20.0 MMcfd) once Northwest completes its pipeline expansion. Westcoast added that, in addition to the export volumes expected to flow to California via Kern River, additional volumes are projected to flow to California by 1993 via the expanded Northwest system with initial deliveries starting at 1 610.0  $10^3\text{m}^3/\text{d}$  (57.0 MMcfd) and increasing to 1 950.0  $10^3\text{m}^3/\text{d}$  (69.0 MMcfd) by 1995.

Westcoast noted that the forecast also makes provision for deliveries of B.C.-sourced gas via Alberta to markets in eastern Canada, California and the midwestern and eastern U.S.

Westcoast argued that it had demonstrated that gas markets would exist for the gas to be transported through the applied-for facilities and that this is further supported through the existence of the service agreements executed with Pennzoil and Suncor.

Suncor argued in support of the facilities noting that, once constructed, they would allow for the immediate export sale to PG&E in accordance with the filed firm service agreement executed with Westcoast.

The British Columbia Ministry of Energy, Mines and Petroleum Resources ("the B.C. Ministry") supported Westcoast's application noting that the new facilities would encourage gas development in the area and thus further ensure B.C.'s security of gas supply.

### 4.3 Views of the Board

The Board finds Westcoast's overall forecast of domestic and export markets to be served off the Westcoast system to be reasonable.

The Board is satisfied with the market evidence filed by Suncor with respect to its gas supply arrangements with Alberta and Southern. In the case of Pennzoil, the Board has noted that Pennzoil has identified a number of potential markets with respect to which gas sales agreements remain to be executed. The Board is satisfied that there are viable, long-term markets for which this gas supply will be required.

The Board notes that no party either disputed Westcoast's overall gas market assessment or questioned the ability of either Pennzoil or Suncor to market the gas once the gas supplies could be assured.



## 5.1 Pipeline Design

The proposed facilities consist of 48.0 km of 219.1 mm O.D. pipe extending from Suncor's production facilities at well d-53-G in the Adsett gas field in northeastern B.C. to the eastern terminus of the Klua Pipeline.

The cost of the facilities was estimated to be approximately \$8.3 million. The line, having a maximum capacity of  $919 \times 10^3 \text{ m}^3/\text{d}$  (32.44 MMcfd), would initially transport sour natural gas for Suncor and Pennzoil for processing at Westcoast's Fort Nelson Gas Plant.

Westcoast testified that it had sized the facilities not only in consideration of the existing reserves but also with a view to precluding the necessity of looping the line for additional throughputs.

Westcoast's evidence showed that the 406.4 mm O.D. Klua Pipeline, approved by Board Order XG-5-91 dated 15 January 1991, would provide sufficient capacity to meet the volume requirements of the integrated pipeline system formed by the Klua and Adsett Pipelines.

Westcoast also testified that its looping project for the Fort Nelson Mainline, approved by Board Order XG-13-91 dated 2 April 1991, had been designed to include those volumes to be transported on the Adsett Pipeline.

### *Views of the Board*

The Board is satisfied that the facilities have been adequately sized to handle the anticipated volumes. The Board is also satisfied that the volumes to be transported by the proposed facilities will not be constrained by the availability of capacity on either the Klua Pipeline or the Fort Nelson Mainline.

## 5.2 Safety

Westcoast proposed to design, construct and test the pipeline in accordance with the appropriate governing legislation. The materials for the pipeline will comply with the sour service requirements of CAN/CSA-Z184-M86 and NACE MR-01-75.

Westcoast testified that, in the event of a line break on the applied-for facilities, the producers' equipment would shut in automatically thereby stopping the flow of gas into the Adsett Pipeline. Furthermore, a check valve at the interconnection with the Klua Pipeline would prevent gas draw-back from that system.

Since the pipeline will lie entirely within unpopulated areas and will be relatively inaccessible, no other valves were proposed along its length. Westcoast testified that the addition of emergency shutdown (ESD) valves along the pipeline would require additional access for servicing requirements and that such valves have their own operating problems.

Westcoast had Western Research prepare a report on the "Estimation of Impacts from a Rupture of the Adsett Pipeline". The report indicated that, according to Alberta historical data on sour gas pipeline incidents, the probability of a rupture on any 750 m length of line would correspond to a frequency of one rupture in 2 300 years. In evaluating the effects of a rupture, the report assumed worst-case conditions including the release of the entire line contents of the Adsett Pipeline. According to the report, in the event of a catastrophic release of gas from the Adsett Pipeline, the concentration of hydrogen sulphide (" $\text{H}_2\text{S}$ ") in excess of 100 parts per million ("ppm") could extend up to 750 m from the release point. In addition, such a rupture could, according to Alberta's emergency response and evacuation criteria, require that residents in the zone extending up to 2.5 km from the pipeline be alerted. Westcoast



testified that there are no residences located within that distance and submitted that the Prophet River Indian Reserve, located approximately five km south of the commencement point of the Adsett line, would therefore be well removed from this zone.

Westcoast submitted evidence on its Emergency Response Plan - Northern District (ERP) which would address incidents on the Adsett Pipeline. This plan provides a description of the facilities to which it applies as well as an emergency action plan in the event of an incident on those facilities. Westcoast also testified that if an incident were to occur along the section of the Adsett Pipeline which parallels the Alaska highway, the highway would be closed regardless of the H<sub>2</sub>S concentrations along it.

### ***Views of Interested Parties***

The B.C. Ministry recommended that, due to the proximity of the Adsett Pipeline to the Alaska highway, should the facilities be approved, the Board consider requiring Westcoast to install an ESD valve at the north end of the pipeline and at least one additional ESD valve, preferably at Kilometre Post 10. The B.C. Ministry also believed that Westcoast's ERP would be enhanced by adding various B.C. provincial agencies to the plan's distribution list and by including a map showing the "area of concern" surrounding the pipeline, i.e. in the event of a pipeline incident, that area in which a concern for public safety exists.

The Band expressed concern over the probability of a release of sour gas and the effects that such a release would have on its reserve. It requested that, should the Adsett facilities be approved, the Board consider the measures suggested by the B.C. Ministry.

### ***Views of the Board***

The Board considers the check valve located at the north end of the Adsett line to be sufficient to prevent backflow from the Klua Pipeline in the event of a rupture on the Adsett line and that an ESD valve at that location would not enhance the safety of the line.

Given the adequacy of Westcoast's proposed measures to protect the public in the event of an

incident, the Board is not persuaded that there is a need for the installation of ESD valves as an extra precaution, especially in light of the right-of-way requirements and potential operating problems of such valves.

The Board notes that, as required by the the Board's *Onshore Pipeline Regulations*, should the class location of the Adsett Pipeline change, Westcoast will be required to submit its plan to deal with the changes for the Board's approval.

The Board also notes that Westcoast has taken appropriate measures in the design of its line to lower the risk of a pipeline rupture. Although the risk of a pipeline rupture is small, should a rupture occur, the Board believes that Westcoast has provided sufficient measures in its ERP to protect the public. As there are no residences within five km of the pipeline, the Board does not believe that a map identifying the "area of concern" needs to be added to Westcoast's ERP.

The Board notes that Westcoast had no concerns with adding various B.C. provincial agencies as suggested by the B.C. Ministry to the distribution list in Westcoast's ERP. Should the Adsett Pipeline be approved, the Board would condition the certificate to require Westcoast to add those agencies to that distribution list.

## **5.3 Other Technical Considerations**

Westcoast's measures for monitoring operating conditions on the Adsett Pipeline are similar to those in place for its Fort Nelson raw gas transmission system. The monitoring is typically done at the inlet to the Fort Nelson Gas Plant and Booster Station No. 12. The metering on the applied-for facilities will be provided by the producers at each tie-in location.

Westcoast testified that its systems are inspected on a regular basis, normally in the spring. Due to the nature of the terrain, the inspection is normally completed by helicopter with line walks where possible. A more intense inspection is done during corrosion control surveys.

Westcoast indicated that since the pipeline would be located at the southern extremity of the discontinuous permafrost zone, permafrost may be encountered in muskeg areas. It also indicated that any permafrost discovered during construc-

tion would, where practical, be excavated to ensure that the pipeline would be installed on stable materials. Weighting of the pipeline may also be considered in permafrost areas.

#### ***Views of the Board***

The Board is of the view that in order to ensure that the pipeline design is adequate for permafrost conditions, Westcoast should be aware of the location and characterization of the permafrost along the proposed route. Therefore, since this will not be known until construction takes place, should the application be approved, the Board would condition the certificate to require Westcoast to submit a report to the Board:

- (i) detailing the characterization and location of the permafrost encountered during construction; and
- (ii) describing the mitigative measures taken to guard against the development of excessive stress in the pipe due to differential thaw settlement or other permafrost-related concerns.

The Board is satisfied with the other technical aspects of the pipeline.

### **5.4 Technical Conditions of the Order**

Westcoast was requested to comment on the appropriateness of certain technical conditions that the Board might recommend be included in a certificate for the project should it be approved. The conditions discussed during the hearing related to submission of the following:

- (i) construction drawings;
- (ii) construction schedules, including periodic updates to the schedules, as required; and
- (iii) cost reports, including a breakdown of incurred costs.

Westcoast indicated that it would have no concerns with such conditions.

#### ***Views of the Board***

To enable the Board to monitor and inspect the construction of the facilities and to monitor project costs, the Board is of the view that Westcoast should submit construction drawings, schedules, including updates, and cost reports. Accordingly, should it decide to approve the proposed facilities, the Board would include such conditions in the certificate which it would issue.



# Land Use and Environmental Matters

## 6.1 Land Use

### 6.1.1 Route Selection

The Adsett Pipeline would be located in north-eastern B.C., within the Fort Nelson Plains physiographic subdivision. That area is characterized by moderate relief and generally poor drainage conditions. The southern portion of the route would encounter escarpments and glacio-lacustrine plains while the northern portion would encounter expanses of organic (muskeg) material.

Westcoast submitted that the selection of the proposed route location was based on the following criteria:

- . efficient connection to contracted gas supplies and the location of existing producer wells and known gas reservoir trends;
- . location of existing pipeline and plant facilities;
- . minimization of line length;
- . avoidance of sidehills;
- . ease of access for pipeline construction and operation personnel;
- . expected environmental impact;
- . utilization of existing corridors; and
- . intersection of watercourses at straight, stable reaches.

A preliminary route was selected after examining airphotos of the area in conjunction with the above criteria. A field reconnaissance was then done of this preliminary route followed by a review by representatives of the province of B.C.

Westcoast submitted that, following the field reconnaissance and provincial review, the route was modified to avoid a relatively steep side slope and to accommodate, to the extent possible, the silviculture operations of the B.C. Forestry Service near the commencement point of the line.

Westcoast testified that it had examined three alternative routes for the proposed line; two reflected greater use of existing seismic lines to the east and west of the proposed route while the third paralleled the Fort Nelson Mainline. Westcoast testified that the alternative routes did not follow existing gas trends, did not allow for an efficient connection to existing gas wells, would require longer producer lines, would be more expensive to construct, and furthermore did not provide for significant environmental benefits. In addition, paralleling the Fort Nelson Mainline would have required four highway crossings, with an associated increase to public risk, and one additional river crossing.

### *Views of Interested Parties*

The Band expressed concern that the proposed route would prejudice the resolution of its specific claim currently before the Department of Indian and Northern Affairs.

### *Views of the Board*

The Board is satisfied with Westcoast's approach to determining the proposed pipeline route. The impact of the route on the Band's specific claim is discussed in Chapter 2.

### 6.1.2 Land Requirements

Westcoast's proposed pipeline will be approximately 48 km long and require an easement width of approximately 18 m, for a total clearing of approximately 80 ha of land. Establishment of the right-of-way requires that Westcoast secure a Temporary Permit for construction purposes, and a Statutory Right-of-Way, following construction and final survey, from the province of B.C. Westcoast indicated that it had not yet secured the Temporary Permit but that it did not anticipate any difficulties in so doing.



Access to the right-of-way during construction will be from one existing all-weather road and two existing winter roads. Westcoast indicated that it would not construct other access roads but would use any other winter roads existing at the time of construction. Westcoast indicated that it was the contractor's responsibility to ensure that any roads utilized during construction would be left in at least the same condition as they were prior to construction.

### ***Views of Interested Parties***

The Band expressed concern that any new access to its traditional lands, specifically the proposed right-of-way, would generate increased hunting pressure from non-natives.

### ***Views of the Board***

The Board appreciates the Band's concern regarding the impact of a new pipeline right-of-way on access. The Board notes that concern regarding increased access extends to the creation of new construction access roads. The Board finds that Westcoast's anticipated land requirements for pipeline construction, installation and operation are reasonable and justifiable.

In order to minimize the impact of access points should the facilities be approved, the Board would require that Westcoast restrict its contractors to the use of existing winter roads and access points. The Board would also require that Westcoast provide evidence that it has secured the necessary authorization for the right-of-way.

## **6.2 Early Public Notification**

### ***6.2.1 Government Liaison***

Development of the Adsett Pipeline potentially affects the jurisdictional interests of the B.C. Ministries of Environment; Forests; Fish and Wildlife; Crown Lands; Municipal Affairs, Recreation and Culture; and Energy, Mines and Petroleum Resources. Westcoast submitted that it had discussed the project with each of these ministries during the preparation of its application, the result being minor modifications to the route location near the commencement point of the pipeline route.

In addition to the provincial ministries, Westcoast also discussed the impacts of the proposed route

with the Department of Fisheries and Oceans (the "DFO"). That department presented a number of recommendations, further discussed in Section 6.3.2, respecting on-site, pre-construction studies of fisheries potential and procedures for fisheries protection in the event that significant habitat or overwintering areas were identified. Westcoast testified that it would have no concerns with implementing those recommendations.

### ***6.2.2 The Band and Interested Parties***

As part of its application process and consistent with the Board's Memorandum of Guidance Concerning Early Public Notification of Proposed Applications, Westcoast indicated that it had met with personnel from the Fort Nelson-Liard Regional District and the directors of the Treaty 8 Tribal Association in June 1990 to discuss Westcoast's proposed activities in northeastern B.C., including the proposed Adsett Pipeline. Westcoast subsequently arranged a meeting with the Band in September 1990 to discuss the Adsett Pipeline. Although Westcoast recognized that this meeting followed the July 1990 filing of the Adsett Pipeline application with the Board, it testified that adjustments to the proposed pipeline route could still have been made since a pipeline route is not finalized until approved by the Board.

### ***Views of the Board***

The Board is satisfied that Westcoast has adequately notified and discussed the proposed application with all parties having an interest in the project, thereby providing for timely public input.

## **6.3 Environmental Matters**

As part of its application, Westcoast submitted an Environmental and Socio-economic Assessment of the Adsett Pipeline. That assessment detailed the probable environmental effects of the project and the proposed measures to mitigate those effects.

### ***6.3.1 Environmental Assessment***

The environmental impacts of the project were considered under two separate processes: an environmental screening of the application pursuant to the EARP Guidelines Order, to the extent that there was no duplication with the Board's own regulatory process, and a project review pursuant

to the Board's mandate under Part III of the Act. Each process was conducted pursuant to the Board's Direction on Procedures as set out in Hearing Order GH-6-90. As part of those procedures, the comments of interested parties were invited with respect to the environmental screening of the application. The only parties to submit comments were the Band, the DFO and Westcoast.

### *Views of the Board*

Subsequent to the review of the environmental information respecting the proposed Adsett Pipeline and the responses received from interested parties, the Board made the following determinations:

- (i) respecting the potential upstream, downstream and end-use effects which could result from the proposal, the Board determined pursuant to Paragraph 12 (c) of the EARP Guidelines Order that the potentially adverse environmental effects, including the social effects directly-related thereto that may be caused by the proposal, would be insignificant or mitigable with known technology; and
- (ii) respecting the environmental, directly-related social and land and land-related effects attributable to the project as proposed, the Board determined that those issues would be appropriately considered as part of its procedures under Part III of the Act, consistent with Section 8 of the EARP Guidelines Order.

As part of a Notice of Motion dated 11 April 1991, and introduced at the commencement of the GH-6-90 proceedings, the Band requested a review of the National Energy Board Environmental Screening Document issued 4 April 1991. The Band was concerned with the Board's findings pursuant to paragraph 12(c) of the EARP Guidelines Order respecting the upstream effects of the project and the fact that the matter of cumulative environmental and directly-related social impacts was not addressed. The Board members in this proceeding decided to refer the Motion to the full Board for consideration, as is the Board's general practice with respect to Applications for Review. The decision of the full Board with respect to the Motion is attached as Appendix II.

## **6.3.2 Environmental Effects**

Westcoast identified a number of environmental effects which could result from the pipeline construction. Those effects, and the mitigative measures proposed by Westcoast, are as follows:

### **(i) Soil Disturbance and Slope Erosion**

The southern portion of the proposed route encounters escarpments and glacio-lacustrine plains while the northern portion encounters expanses of organic (muskeg) material. Westcoast indicated that since these areas contain soils which in general have poorly developed "A" horizons, topsoil separation during pipeline construction would probably not be practiced. Those soils may also be fine-textured, contributing to soil erosion, and may contain high ice concentrations, contributing to trenchline subsidence.

Westcoast proposed a winter construction schedule in order to facilitate construction in the muskeg areas. During construction, Westcoast proposed to install ditch plugs and stub and diversion berms to reduce water movement and erosion along the right-of-way, and to roach the backfill material to compensate for trenchline subsidence.

### **(ii) Drainage**

The surface drainage of the area is dendritic in form with meandering watercourses and extensive muskeg areas. Environmental problems would occur should stream channel migration cut into the proposed right-of-way, possibly exposing the pipe and reducing its integrity. Further environmental damage could occur should the reduced integrity result in a pipeline failure.

Westcoast proposed to install the pipe at extra depth (1.5 m of cover) throughout the floodplain of all major stream crossings. The pipeline route was selected so as to intersect streams along relatively straight stretches of channel where minimal streambank erosion would occur. The potential for streambank erosion would be further reduced through special construction procedures, including winter construction.

### **(iii) Fisheries**

Pipeline construction near streams could result in the disturbance and loss of existing and potential



fish habitat at the stream crossing and downstream. Streambank erosion, sedimentation, and toxic spills could decrease water quality and further reduce fish populations.

Westcoast indicated that no fisheries data were available for the streams to be crossed. However, recent studies conducted on larger water systems in the area suggested that overwintering species probably do not exist in the streams to be crossed since these streams freeze completely during the winter. Furthermore, according to the B.C. Ministry of Fish and Wildlife, these streams would not be probable spawning grounds.

Westcoast indicated that the winter construction schedule would minimize the disturbance of the fisheries resource. The frozen conditions would reduce sedimentation problems, ice/snow bridges would reduce streambank disturbance and the 100 m setback requirement from streambanks for fueling and maintenance would reduce the possibility of water contamination.

#### (iv) Wildlife Resources

Westcoast predicted that the Adsett Pipeline could result in six environmental impacts to wildlife and wildlife users. Included in those impacts were sensory disturbance, blockage of wildlife movement, habitat alteration, increased access and a potential increase in hunting activity, animal mortality resulting from vehicle collisions, and the disruption of local hunting and trapping patterns.

Westcoast submitted that the impacts of wildlife sensory disturbance and movement would be reduced by winter construction as well as breaks in the spoil piles which would permit wildlife movement. Westcoast testified that habitat alteration would be reduced by the use of approximately eight km of existing seismic line right-of-way. Westcoast further testified that the clearing of a new 40 km long by 18 m wide right-of-way would not cause a significant disturbance considering the clearing which already exists in the area. Respecting increased access and the potential increase in hunting activity, Westcoast indicated that approximately 66 percent of the route was located in muskeg which is difficult to traverse even by all terrain vehicles and which, in addition, has less bearing capacity following construction and restoration. Westcoast also noted that construction would commence after the hunting

season had closed. Concerning the impact of the pipeline construction on wildlife harvesting by registered hunters and trappers, Westcoast proposed to notify individuals of the commencement of construction and the construction schedule. Furthermore, any claims associated with damage during construction would be dealt with on a case-specific basis.

#### (v) Heritage Resources

The principal concern related to heritage resources would be the potential loss of unidentified prehistoric and palaeontological resources during pipeline construction.

The archaeological report provided by Westcoast did not identify any significant resources that would be affected by the pipeline construction. That report was also submitted to, and accepted by, the B.C. Ministry of Municipal Affairs, Recreation and Culture.

#### *Views of Interested Parties*

After completing an environmental screening of the Adsett Pipeline on the impacts upon fish and fish habitat, the DFO proposed that several conditions be included in the certificate, should the Board decide to approve the Adsett Pipeline. Subject to the implementation of these conditions, the DFO found that the potentially adverse environmental effects which may be caused by the applied-for facilities would be insignificant or mitigable with known technology.

The conditions suggested by the DFO were as follows:

For each of the six watercourses to be crossed by the proposed pipeline, Westcoast would be required to:

- (i) conduct a synoptic habitat inventory using the DFO/B.C. Ministry of the Environment Stream Survey forms;
- (ii) conduct an inspection coinciding with the fall spawning period for bulltrout to confirm that fall spawning or overwintering habitats would not be affected, and in the event that they would be affected, use alternative crossing methods or realign the crossings so as to avoid those habitats;



- (iii) conduct an inspection prior to the trenching operation to confirm the absence of overwintering fish, and in the event that such fish are discovered, relocate those species;
- (iv) construct structures (eg. ice or snow bridges) capable of withstanding loads due to the multiple passage of machinery, and to make repairs where necessary;
- (v) ensure that the contractor has all necessary equipment including pumps, pipe and machinery onsite prior to commencing any stream crossing;
- (vi) control any seepage of subsurface flows through the use of special ditch plug design and control measures;
- (vii) ensure that any waste from clearing and construction is pulled well back and placed outside of the high water mark on stable, non-erodible material;
- (viii) ensure that grubbing of the right-of-way within the high water mark of the active floodplain immediately precedes the trenching operation, remove any existing 10 to 20 m strips of brush cover along streambanks only where necessary and even then only immediately prior to the trenching operation, and minimize the width of the right-of-way at the approaches to watercourses to the extent possible;
- (ix) leave a protective plug of unexcavated material of at least 1.5 times the width of the trench at the approach to each water crossing;
- (x) ensure that the pipe is installed and the trench backfilled with clean, native material in one continuous operation;
- (xi) construct impermeable structures to block the flow of groundwater into the trench in those instances where groundwater interceptions could occur;
- (xii) remove all construction materials and debris, return the channel to its original width and depth, excavate ice or snow bridges to the original channel depth and remove any material so that ponding of the watercourses will not occur; and

- (xiii) restore any disturbed riparian areas by planting native conifers or deciduous vegetation as appropriate.

Westcoast testified that it would not object to the inclusion of these conditions with the exception of the requirement to remove any existing 10 to 20 m strips of bush cover along streambanks only when necessary and even then not until just prior to the trenching operation. Since the entire right-of-way would be used for access, Westcoast testified that construction would be impeded by such a requirement. Westcoast indicated that it would further discuss this issue with the DFO and would advise the Board of the outcome of those discussions. By letter to the Board dated 9 May 1991, the DFO indicated that it was satisfied with Westcoast's proposal to hand-clear the riparian areas and to reseed and replant tree species.

The Band accepted Westcoast's environmental protection measures as being sound and sufficient to prevent accidental mortality of fish and wildlife or inadvertant habitat loss during pipeline construction. The Band, however, expressed concern that the project might impact on Adsett Creek, from which the reserve's water supply is drawn, and that the traditional use of affected lands was not considered in the routing of the proposed line. The latter concern extended to the potential increase of access to those lands by non-natives for hunting purposes.

Westcoast confirmed that the extreme southern end of the proposed pipeline would fall within the Adsett Creek watershed. However, it testified that all open channels crossed by the pipeline flowed to Marten Creek, a tributary to Adsett Creek. Furthermore, Westcoast testified that any siltation resulting from construction would be filtered out by the right-of-way surface and would not find its way into the water supply of Adsett Creek. Westcoast also testified that although a small percentage of groundwater from the extreme southern end of the pipeline could ultimately reach Adsett Creek, no contaminants would be introduced through either construction or maintenance procedures.

Regarding the connecting producer facilities, Westcoast testified that dehydration facilities would be required to strip the water from the gas. The water would then be re-injected into the gas reservoir well below any groundwater source that might feed into Adsett Creek. Westcoast also noted that the dehydrants would be recycled.

Respecting the Band's concerns related to its traditional use of the lands, including increased access and hunting, Westcoast testified that its assessment indicated that the effects of the Adsett Pipeline on the biological resources in the vicinity of the pipeline and on the use of those resources would be negligible. Westcoast provided details on the potential new access into the region. It testified that the approximately 66 percent of the line located in muskeg would not be accessible during the hunting season. Of the remaining 18 km, nine parallel the Alaska Highway and would therefore not constitute new access while the remaining nine traverse small areas of localized wet spots which will not support conventional truck travel.

Westcoast noted that the wet muskeg areas along the proposed pipeline route do not provide a good habitat for moose, the main species hunted. Westcoast further indicated that the edge effect resulting from regeneration within a coniferous-dominated muskeg would not result in deciduous browse, a productive browse source. Westcoast did agree, however, that within the southern portion of the proposed route, a small section falls within a birch stand where there could be browse production but that the production would be very localized in nature.

### ***Views of the Board***

The Board is satisfied with the environmental information provided by Westcoast respecting the potential impacts which may result from the construction and operation of the Adsett pipeline and with the proposed mitigation measures. Should the Adsett Pipeline be approved, the Board would condition the certificate to ensure that those measures, as well as those agreed to by Westcoast and the DFO, are implemented.

The Board would also condition the certificate to require Westcoast to file first- and second-year post construction environmental reports, indicating the outstanding environmental issues and the procedures to resolve those issues.

## **6.4 Cumulative Impacts**

The issue of cumulative impacts was raised in the Band's direct evidence:

*"... in recent years the traditional lands of the Prophet River Indians have been used for development, including exploration, oil and gas*

*wells, pipelines, logging, transmission lines, transmission corridors and increasing human settlement. The consequence of this development has been a diminished land base and diminished resources, with no corresponding benefit to the Prophet River Indians. This development has not increased the wealth of the Prophet River Indians, nor provided employment opportunities, nor training."*

Further evidence of the Band on cumulative impacts was presented through material based on two documents prepared under the auspices of the Canadian Environmental Assessment Research Council ("CEARC") and through a series of maps depicting the development which had occurred in the Prophet River area between 1940 and 1990.

The CEARC studies establish that certain types of cumulative effects, including time-crowding, space-crowding, synergism, indirect effects and nibbling, are well understood as well as the means or pathways that result in these effects. A concept arising from the documents is that those agencies responsible for authorizing independent projects are not suited to the identification and management of cumulative effects since they themselves do not have control over the planning for regional ecosystems. Such control should rest with the governing agency responsible for the overall development of the region since it requires extensive baseline studies and monitoring. The studies also note that although many effects are long-term, repetitive and possibly conspicuous, not all effects are cumulative.

The series of maps illustrate that in 1948, apart from the Alaska Highway, the only development in the region was Reserve 2315, namely the Prophet River Reserve No. 4, and a series of trails connected to it. By 1979, seismic lines traversed the region, the Alaska Highway had been rerouted, 20 wells had been drilled, and settlement, agricultural and cut forest blocks had been created. By 1990, although no new wells had been developed, seismic activity had increased noticeably and the other developments had continued. Westcoast testified that a seismic line would be encountered approximately every 1.3 km along the route of the proposed Adsett Pipeline.

Based upon the foregoing evidence, the Band requested that the Board recommend that a study or inquiry, preferably federal and provincial, be undertaken to address the environmental, social and economic impacts that development in the



traditional lands of the Band has had on the Band. The Band further requested that it have input regarding the terms of reference of the study and that the study consider and make recommendations concerning the issues of land claims, Treaty rights, compensation and management schemes. The Band recognized that the Board does not have the power or the jurisdiction to undertake such a study but that it does have the jurisdiction to make such a recommendation to the federal government.

It was the Band's position that this study should be completed no matter what the Board's decision would be with respect to the Adsett Pipeline. In addition, the Band maintained that, should the Board decide to approve the applied-for facilities, a certificate should not be issued until such time as the study had been completed.

In recognition of the fact that the Board can only recommend to the appropriate authorities that such a major study be undertaken, the Band recommended that, should the Adsett Pipeline be approved, a condition be included in the certificate requiring Westcoast to undertake a wildlife study. The Band recommended that this study determine the distribution and value of habitat and vegetation, including forests, fish, wildlife and other natural resources within the region surrounding the pipeline. The Band further recommended that the study quantify habitat loss and carrying capacity for the important species used by the Band as a result of the cumulative effects of development in the area.

In response to the Band's request that the Board recommend that a federal study be undertaken prior to further consideration of the Adsett Pipeline, Westcoast stated that in its view it would be inappropriate for a study of this magnitude to be linked to the Board's assessment of the pipeline. Westcoast's response to the Band's request that a wildlife study be included as a certificate condition was that, although it believed its participation in such a study was appropriate, since such a condition would have to deal with open-ended issues such as the extent of Westcoast's participation as well as other federal/provincial organizations and the duration of the study, it would therefore not lend itself readily for inclusion in a certificate.

### *Views of the Board*

The Board acknowledges that the development that has occurred in the gas fields surrounding the

proposed facilities has had considerable environmental and socio-economic impact on the region. However, in the Board's view, the evidence presented during the GH-6-90 proceedings has not demonstrated whether those impacts are cumulative. Habitat loss and enhancement have not been quantified in terms of wildlife productivity, especially in terms of those species on which the Band has relied in the past and may rely on in the future. The Board is of the view that this type of evidence could only be made available through specific long-term inter-agency planning and studies by the authorities responsible for overall resource management in the area, which in this case is the Province of B.C. However, the Board has neither the authority nor the jurisdiction to recommend to the provincial government that such planning, or a study to initiate that planning, be undertaken.

In considering Westcoast's application for the Adsett Pipeline, the Board has weighed the effect of seismic and other energy-related exploration and development that has occurred in the past in addition to what will likely occur as a direct result of the construction of the proposed facilities. In addition to the evidence before it, the Board has relied upon its own expertise to assess the past, present and future environmental consequences directly related to the Adsett Pipeline.

The Board recognizes that the region has undergone significant change and development over the past 40 years as a result of a variety of circumstances, many of which are unrelated to energy exploration and development yet all of which have had an effect on the Band's traditional lifestyle. The Board, however, can only examine the environmental impact and socio-economic impact directly related to the Adsett Pipeline and finds in the circumstances of this case that these will be insignificant or mitigable with known technology. In reaching this finding, the Board has considered the size of the project as compared to the entire region, the nature of the project and the mitigative measures proposed by Westcoast.

With respect to the condition proposed by the Band that a wildlife study be undertaken by Westcoast should the project be approved, the Board is of the view that the scale of the project would not warrant such a study.



# Socio-economic Matters

## 7.1 Hiring Practices

Westcoast testified that its contractors must agree to adhere to Westcoast's policy of preference in hiring and utilizing personnel and services located near the project site, of using all reasonable efforts to hire labour in the locale in which the project is being carried out, and of having particular concern for the needs of indigenous peoples. Furthermore, Westcoast indicated that it has been engaged in negotiations with the Band regarding, *inter alia*, training and employment. Westcoast testified that it would use every reasonable effort to reach an agreement with the Band. Westcoast indicated that such an agreement should not be the subject of a certificate condition since it could harm the negotiations with the Band.

### *Views of Interested Parties*

The Band proposed that, should the applied-for facilities be approved, a condition be included in the certificate requiring Westcoast to use all reasonable efforts to facilitate training and employment of the Band's members in its operations in northeastern B.C. including, but not limited to, the Adsett Pipeline.

### *Views of the Board*

With respect to employment of Band members, the Board expects that since Westcoast has a policy of preference in hiring and utilizing personnel and services located near its project sites, it will use all reasonable efforts to ensure that qualified labour, including Band members, is hired from the locale through which the Adsett Pipeline will pass.

The Board encourages Westcoast to work with authorities having manpower and training responsibilities to ensure that local participation in Westcoast's present and future activities in northeastern B.C., as well as the potential benefits derived by the local residents from these activities, are optimized.

The Board notes that Westcoast testified that it was carrying on certain discussions with the Band regarding, *inter alia*, training and employment in Westcoast's future activities and that it would use every reasonable effort to reach an agreement with the Band. The Board encourages Westcoast to pursue these discussions with the Band.

The Board is of the view that, should the pipeline be approved, it would not be appropriate to include a certificate condition respecting training and employment as proposed by the Band since the scope of the matters under discussion between Westcoast and the Band would be broader than that required for the Adsett Pipeline.

## 7.2 Access to the Right-of-Way

Westcoast testified that the pipeline right-of-way would not provide a good access route for hunting purposes due to the wetness of the terrain. It also testified that travel with all terrain or four-wheel drive vehicles would be very difficult since most of the muskeg areas, which account for approximately 66 percent of the proposed pipeline route, would not support such traffic.

### *Views of Interested Parties*

The Band expressed concern about the use of the right-of-way by non-native hunters for illegal hunting purposes following freeze-up. It believed that, should the Adsett Pipeline be approved, the Board should condition the certificate by requiring Westcoast to restrict the use of the right-of-way by non-native people.

### *Views of the Board*

The Board believes that a condition limiting access to the right-of-way would not be effective since it would be almost impossible to enforce. The Board, however, is encouraged by Westcoast's intent to

make every effort to reduce or eliminate access to the right-of-way by non-company people.

### **7.3 Compensation**

Westcoast testified that it will deal with hunting and trapping losses resulting from construction of the applied-for facilities. It also testified that it has an unqualified responsibility for damages to third parties resulting from its activities and for damages resulting from failures along its pipeline system.

#### ***Views of Interested Parties***

The Band believed that, should the Adsett Pipeline be approved, a condition should be included in the certificate requiring Westcoast to provide full compensation for damages suffered by the Band as a result of pipeline activities.

#### ***Views of the Board***

The Board agrees that Westcoast has an unqualified responsibility, enforceable through the courts, for damages resulting directly from its pipeline activities and therefore does not propose to so condition a certificate, should the facilities be approved.

# Economic Feasibility of the Project

In support of its argument that the proposed Adsett Pipeline would be economically feasible, Westcoast submitted an assessment of the following:

- the long term markets;
- the adequacy of the gas supplies of Suncor and Pennzoil; and
- the potential for additional reserve development.

Westcoast maintained that there are sufficient markets available to justify the Adsett Pipeline. As discussed in Chapter 4, Westcoast argued that its overall assessment of available markets and the execution of firm service agreements with Suncor and Pennzoil demonstrate the need for the applied-for facilities.

With regard to the adequacy of gas supplies, Westcoast indicated that the Jackfish, Adsett, Bulldog and Tenaka fields can sustain deliverability at the currently contracted level, as discussed in Chapter 3. Moreover, Westcoast stated that it anticipates that additional gas reserve development will occur in the area.

## *Views of Interested Parties*

Suncor provided support for Westcoast's assessment of established reserves and undiscovered potential available to the Adsett Pipeline and confirmed that the reserves attributed by Westcoast to the Adsett field are consistent with Suncor's reserves analysis.

Regarding long-term markets, Suncor stated that it has a long-term gas sales contract in place and that deliveries will commence as soon as the proposed facilities are in place.

## *Views of the Board*

In assessing the economic feasibility of the proposed Adsett Pipeline, the Board considered the following:

- the adequacy of long-term gas supplies;
- the existence of gas markets; and
- the willingness of Suncor and Pennzoil to contract for firm service and to pay the applicable tolls.

As discussed in Chapters 3 and 4, the Board is satisfied that Westcoast has demonstrated the adequacy of reserves and productive capacity and that long-term domestic and export markets support Westcoast's assessment that the proposed facilities would likely be required over the forecast period.

The Board is satisfied that Westcoast's executed agreements with Suncor and Pennzoil demonstrate their commitment to pay the applicable tolls.

Based on the above, the Board is of the view that the economic feasibility of the Adsett Pipeline has been demonstrated.



# Application of the Raw Gas Transmission Facility Expansion Policy

On 9 April 1991, Westcoast filed an updated study for the Adsett Pipeline project indicating that, based on the approved Raw Gas Transmission Facility Expansion Policy ("RGT Policy"), no surcharge would be required. The study relied on a cost of service forecast for a ten-year horizon and agreements for firm raw gas transmission and firm treatment services with Suncor and Pennzoil.

In its evaluation, Westcoast included two-times the present value of the expected annual raw gas transmission revenues ("the two-times test") and 50 percent of the present value of the expected annual processing revenues<sup>1</sup>.

Westcoast stated that it applied the two-times test because the facilities are being constructed to meet more than just the initial requests supporting the expansion. As discussed in Chapters 3 and 8, Westcoast explained that it anticipates that other shippers with gas in the Adsett, Jackfish, Bulldog and Tenaka gas fields would contract for service on the Adsett Pipeline.

Regarding the inclusion of processing revenues, Westcoast stated that a full processing revenue credit should be included in the calculation of the surcharge because a queue for firm processing

service did not exist at the Fort Nelson Gas Plant when the Adsett Pipeline application was originally filed in July 1990.

## *Views of Interested Parties*

No party questioned Westcoast's application of the RGT Policy to the Adsett Pipeline.

## *Views of the Board*

The Board is satisfied that Westcoast has correctly applied the RGT policy in the case of the Adsett Pipeline and, consequently, agrees that no surcharge should apply.

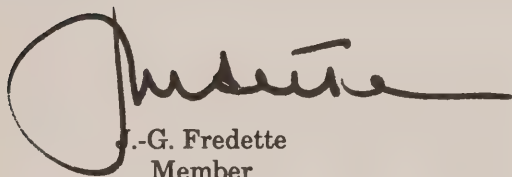
- 
1. The RGT Policy specifies that the two-times test will be used in the calculation of the toll surcharge for a new raw gas transmission pipeline when the proposed pipeline has been designed with a capacity substantially greater than that required to serve the initial requests supporting the expansion with a view to accommodating further gas development in the area. The RGT Policy also specifies that if a queue does not exist at the downstream processing plant to be used by the shippers on the new pipeline facilities immediately prior to the filing of the facilities application, a credit equal to 50 percent of the present value of the annual processing revenues for any new contracted processing capacity shall be included in the calculation of the toll surcharge.

The Board approves the application by Westcoast Energy Inc., pursuant to Part III of the Act, for a Certificate of Public Convenience and Necessity for the Adsett Pipeline. Upon approval by the Governor in Council, the Board will issue Certificate No. GC-81 certifying the applied-for facilities.

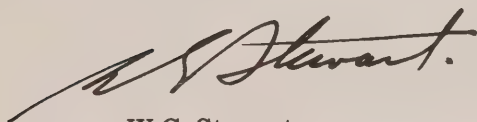
The foregoing chapters, together with Certificate No. GC-81, constitute the Board's Reasons for Decision on this application.



C. Bélanger  
Presiding Member



J.-G. Fredette  
Member



W.G. Stewart  
Member

Ottawa, Canada  
June 1991

1. The appropriateness of the route selection of the proposed Adsett pipeline, including the availability of gas to be transported by the pipeline.
2. The adequacy of Westcoast downstream facilities to accommodate the additional gas throughput.
3. The reasonableness of the forecast of requirements for domestic and export sales and transportation service.
4. The potential environmental effects, including any directly-related social concerns, of the proposed facilities during and after construction.
5. The appropriate terms and conditions to be included in any certificate or order which may be issued.



## Appendix II

## The Board's Decision on the Application for Review of the National Energy Board Environmental Screening Document

File No.: 3200-W5-3

13 May 1991

Mr. John R. Rich,  
Ratcliffe & Company,  
Barristers & Solicitors  
103-133 West 15th Street  
Vancouver, British Columbia  
V7M 1R8

Dear Mr. Rich:

**Re: Application by the Prophet River  
Indian Band dated 11 April 1991 for  
Review pursuant to Subsection 21(1)  
of the National Energy Board  
Environmental Screening Document  
issued 4 April 1991**

The Board has considered the above-noted application for review filed on behalf of the Prophet River Indian Band ("the Band"). The Board notes that the application was filed pursuant to the provisions of the *National Energy Board Act* to review the National Energy Board Environmental Screening Document (the "Screening Document") which the Board made and issued pursuant to the provisions of the *Environmental Assessment and Review Process Guidelines Order* (the "Guidelines Order").

In the Screening Document at page 2 the Board stated:

*"In Order GH-6-90, the Board advised interested parties that it intended to examine the potential environmental effects, including any adverse directly-related social concerns, of the proposed Adsett Pipeline during the hearing. However, prior to the hearing, as required by*

*the Environmental Assessment and Review Process Guidelines Order, the Board is conducting a screening of the potential environmental effects to the extent that there is no duplication with the Board's own regulatory process. In conducting this screening, the Board considered the information provided by the proponent and interested parties."* (emphasis added)

The *Guidelines Order* itself does not contain a provision authorizing an initiating department to review the findings in its Screening Document. Consequently, the Board is of the opinion that it does not have the express or implied authority under the *Guidelines Order* to review the findings of the Screening Document. Accordingly, the subject application for review is denied.

The Board would also add that the potential environmental effects of the proposal and the social effects directly related to those environmental effects including the issue of cumulative environmental and directly related socio-economic impacts are matters which interested parties, including the Band, adduced evidence on and addressed during the course of the public hearing which the Board held pursuant to Hearing Order GH-6-90 in accordance with the provisions of the *National Energy Board Act*. The Board's decision in respect of that public hearing is still pending.

Yours truly,

Marie Tobin  
Secretary

c.c. All Interested Parties to Hearing Order  
GH-6-90

## Certificate Conditions in Respect of the Adsett Pipeline

1. The pipeline facilities for which this certificate is being issued ("the applied-for facilities") shall be the property of and shall be operated by Westcoast.
2. (a) Westcoast shall cause the applied-for facilities to be designed, manufactured, located, constructed and installed in accordance with those specifications, drawings, and other information or data set forth in its application, or as otherwise adduced in evidence before the Board, except as varied in accordance with paragraph 2(b) hereof.  
  
(b) Westcoast shall cause no variation to be made to the specifications, drawings or other information or data referred to in paragraph 2(a) without prior approval of the Board.
3. Westcoast shall implement or cause to be implemented all the policies, practices, recommendations and procedures for the protection of the environment included in its application, its Procedures Manual For Environmental Engineering, March 1987, or as otherwise adduced in evidence before the Board in the GH-6-90 proceedings, including those conditions agreed to between Westcoast and the Department of Fisheries and Oceans.
4. Westcoast shall, at least 10 days prior to the commencement of construction of the applied-for facilities, file with the Board a detailed construction schedule or schedules identifying the major construction activities.
5. During construction, Westcoast shall file updated construction schedules, if any significant change to the schedules provided pursuant to paragraph 4 occur.
6. Prior to the commencement of construction, Westcoast shall file with the Board:
  - (a) evidence to demonstrate that it has secured the necessary Temporary Permit from the government of British Columbia for the applied-for facilities; and
  - (b) a copy of its letter of notification to affected registered trappers along the route.
7. Westcoast shall, within 21 days from the commencement of pipeline welding, file with the Board copies of the qualified welding procedures to be used during the project together with supporting documentation.
8. Prior to issuing leave-to-open for the applied-for-facilities, the Board will require Westcoast to submit a report satisfactory to the Board:
  - (a) detailing the characterization and location of the permafrost encountered during construction; and
  - (b) describing the mitigative measures taken to guard against the development of excessive stresses in the pipe due to differential thaw settlement or other permafrost-related concerns.
9. Westcoast shall add the following agencies to the distribution list of its Northern District Emergency Response Plan:
  - (i) the Engineering and Operations Branch, British Columbia Ministry of Energy, Mines and Petroleum Resources;
  - (ii) the Engineering and Inspection Branch, British Columbia Ministry of Municipal Affairs, Recreation and Culture;
  - (iii) the British Columbia Provincial Emergency Program, Solicitor General;
  - (iv) the Waste Management Branch, British Columbia Ministry of Environment; and
  - (v) the Prince George Forest Region, British Columbia Ministry of Forests.



10. Westcoast shall, within six months of putting any of the applied-for facilities into service, file with the Board a report providing a breakdown of the costs incurred in the construction of the facilities, including reasons for significant differences from the estimates provided in the application.
11. (a) Westcoast shall file with the Board a post-construction environmental report within six months of the date that the last leave-to-open is granted for the applied-for facilities.  
(b) The post-construction environmental report referred to in paragraph 11(a) shall set out the environmental issues that have arisen up to the date on which the reports is filed and shall:
  - (i) indicate the issues resolved and those unresolved; and
  - (ii) describe the measures that Westcoast proposes to take in respect of the unresolved issues.
- (c) Westcoast shall file with the Board, on or before the 31 December that follows each of the first two complete growing seasons after the post-construction environmental report referred to in paragraph 11(a) is filed:
  - (i) a list of the environmental issues indicated as unresolved in the report and those that have arisen since the report was filed, if any; and
  - (ii) a description of the measures Westcoast proposes to take to solve any unresolved environmental issue.
12. Unless the Board otherwise directs prior to 31 December 1992, this certificate shall expire on 31 December 1992 unless the construction and installation with respect to the applied-for facilities has commenced by that date.







